

What is claimed is:

1. A method for displaying electrogram data collected by a pacemaker where one heart chamber is paced through a rate sensing/pacing channel and another site in the same or contralateral chamber is paced through a synchronized sensing/pacing channel with the  
5 pacing mode being based upon senses and paces in the rate channel, comprising:

displaying markers representing sensing and pacing events spaced apart in accordance with their time sequence, wherein each marker indicates whether the event is a sense or a pace and in which channel the event occurred;

10 displaying an interval value with each rate channel marker indicating the time interval between the event represented by the marker and the preceding rate channel event; and,

displaying an interval value with each synchronized channel marker indicating the time interval between the event represented by the marker and a nearest rate channel  
15 event.

2. The method of claim 1 wherein the rate and synchronized channels are right and left ventricular channels.

20 3. The method of claim 1 wherein the rate and synchronized channels are right and left atrial channels.

4. The method of claim 1 wherein the pacemaker is operated with a plurality of synchronized channels and further comprising displaying markers for each such channel.

25 5. The method of claim 1 wherein the displayed interval value with each synchronized channel marker indicates the time interval between the event represented by the marker and the nearest preceding rate channel event.

30 6. The method of claim 1 wherein the displayed interval value with each synchronized channel marker indicates the time interval between the event represented by

the marker and the nearest rate channel event which may follow or precede the synchronized channel event as indicated by a negative or positive interval value, respectively.

5 7. The method of claim 1 wherein the displayed interval value with each synchronized channel marker indicates the absolute value of the time interval between the event represented by the marker and the nearest rate channel event which may precede or follow the synchronized channel event, and the synchronized channel interval is displayed in alignment with the marker representing the later of either the synchronized  
10 channel or rate channel event.

8. A method for displaying electrogram data collected by a pacemaker where one heart chamber is paced through a rate sensing/pacing channel and another site in the same or contralateral chamber is paced through a synchronized sensing/pacing channel with the  
15 pacing mode being based upon senses and paces in the rate channel, comprising:

displaying markers representing sensing and pacing events spaced in accordance with their time sequence, wherein each marker indicates whether the event is a sense or a pace and in which channel the event occurred;

displaying an interval value with each rate channel marker indicating the time  
20 interval between the event represented by the marker and the preceding rate channel event; and,

displaying an interval value with each synchronized channel marker indicating the time interval between the event represented by the marker and the nearest preceding rate channel sense or synchronized channel pace.

25 9. The method of claim 8 wherein the rate and synchronized channels are right and left ventricular channels.

10. The method of claim 8 wherein the rate and synchronized channels are right and  
30 left atrial channels.

11. The method of claim 8 wherein the pacemaker is operated with a plurality of synchronized channels and further comprising displaying markers for each such channel.

12. The method of claim 8 wherein the displayed interval value with each  
5 synchronized channel marker indicates the time interval between the event represented by the marker and the nearest preceding rate channel event.

13. The method of claim 8 wherein the displayed interval value with each  
10 synchronized channel sense marker indicates the time interval between the event represented by the marker and the nearest rate channel sense event or synchronized channel pace event which may follow or precede the synchronized channel sense event as indicated by a negative or positive interval value, respectively.

14. The method of claim 8 wherein the displayed interval value with each  
15 synchronized channel sense marker indicates the time interval between the event represented by the marker and the nearest rate channel sense event or synchronized channel pace event which may precede or follow the synchronized channel sense event, and the synchronized channel sense interval is displayed with the marker representing the later of either the synchronized channel or rate channel event.

20 15. A cardiac rhythm management system, comprising:

a pacemaker having a rate sensing/pacing channel and a synchronized sensing/pacing channel, a controller for controlling the delivery of paces in accordance with a pacing mode based upon rate channel events, and a telemetry interface for  
25 transmitting signals representing rate and synchronized channel events;

an external programmer with an associated electronic display or print output, wherein the programmer is configured to receive the signals transmitted by the pacemaker and output markers representing sensing and pacing events on the display spaced in accordance with their time sequence, wherein each marker indicates whether  
30 the event is a sense or a pace and in which channel the event occurred; and,

wherein the external programmer is configured to display an interval value with each rate channel marker indicating the time interval between the event represented by the marker and the preceding rate channel event, and display an interval value with each synchronized channel marker indicating the time interval between the event represented by the marker and a nearest rate channel event.

16. The system of claim 15 wherein the displayed interval value with each synchronized channel marker indicates the time interval between the event represented by the marker and the nearest preceding rate channel event.

17. The system of claim 15 wherein the displayed interval value with each synchronized channel marker indicates the time interval between the event represented by the marker and the nearest rate channel event which may follow or precede the synchronized channel event as indicated by a negative or positive interval value, respectively.

18. The system of claim 15 wherein the displayed interval value with each synchronized channel marker indicates the time interval between the event represented by the marker and the nearest rate event which may precede or follow the synchronized channel event, and the synchronized channel event interval is displayed in alignment with the marker representing the later of either the synchronized channel or synchronized channel event.

19. A cardiac rhythm management system, comprising:

a pacemaker having a rate sensing/pacing channel and a synchronized sensing/pacing channel, a controller for controlling the delivery of paces in accordance with a pacing mode based upon rate channel events, and a telemetry interface for transmitting signals representing rate and synchronized channel events;

an external programmer with an associated electronic display or print output, wherein the programmer is configured to receive the signals transmitted by the pacemaker and output markers representing sensing and pacing events on the display

spaced in accordance with their time sequence, wherein each marker indicates whether the event is a sense or a pace and in which channel the event occurred; and,

- wherein the external programmer is configured to display an interval value with each rate channel marker indicating the time interval between the event represented by the marker and the preceding rate channel sense, and display an interval value with each
- 5   synchronized channel marker indicating the time interval between the event represented by the marker and the nearest preceding rate channel sense or synchronized channel pace.